

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (cancelled)

1 2. (currently amended): A magnetic head having a magnetoresistive sensor,
2 comprising:

3 a plurality of sensor layers;

4 a hard bias/lead structure being disposed at side areas of said sensor layers, said
5 hard bias/lead structure including:

6 a hard bias layer having a crystalline structure and electrical lead layer having an ordered
7 crystalline structure, and wherein said crystalline structure of said lead is epitaxially
8 matched to said crystalline structure of said hard bias layer, and ~~A magnetic head as~~
9 ~~described in claim 1,~~ wherein said hard bias layer is composed of a cobalt alloy, and
10 wherein said lead layer is formed with a B2 structure.

1 3. (original): A magnetic head as described in claim 2 wherein said lead layer is
2 composed of NiAl.

1 4. (original): A magnetic head as described in claim 2 wherein said lead layer is
2 comprised of NiAl, wherein the Ni composition ranges from approximately 45% to
3 approximately 60%.

1 5. (original): A magnetic head as described in claim 4 wherein said Ni composition
2 is approximately 50%.

1 6. (cancelled)

1 7. (currently amended): ~~A magnetic head as described in claim 6~~ A magnetic head
2 having a magnetoresistive sensor, comprising:
3 a plurality of sensor layers;
4 a hard bias/lead structure being disposed at side areas of said sensor layers, said
5 hard bias/lead structure including an electrical lead layer having an ordered crystalline
6 structure; and wherein said electrical lead layer ordered crystalline structure is selected
7 from the group consisting of B2, L1₀, L1₁, L1₂ and D0₃.

1 8. (currently amended): ~~A magnetic head as described in claim 6~~ A magnetic head
2 having a magnetoresistive sensor, comprising:
3 a plurality of sensor layers;
4 a hard bias/lead structure being disposed at side areas of said sensor layers, said
5 hard bias/lead structure including an electrical lead layer having an ordered crystalline
6 structure; and wherein said electrical lead layer is comprised of a material selected from
7 the group consisting of NiAl, CuAu, Cu₃Au, Ni₃Al and Fe₃Al.

1 9. (original): A magnetic head having a magnetoresistive sensor, comprising:

2 a plurality of sensor layers;

3 a hard bias/lead structure being disposed at side areas of said sensor layers, said
4 hard bias/lead structure including a hard bias layer that is comprised of a cobalt alloy, and
5 an electrical lead layer that is comprised of an NiAl alloy and is deposited directly upon
6 said hard bias layer.

1 10. (original): A magnetic head as described in claim 9 wherein said NiAl electrical
2 lead has a B2 crystalline structure.

1 11. (original): A magnetic head as described in claim 9 wherein said NiAl lead layer
2 includes Ni having a composition between 45% Ni and 60% Ni.

1 12. (original): A magnetic head as described in claim 11 wherein said Ni
2 composition is approximately 50%.

1 13. (cancelled)

1 14. (currently amended): ~~A hard disk drive as described in claim 13, A hard disk~~
2 drive including a magnetic head having a magnetoresistive sensor, comprising:

3 a plurality of sensor layers;

4 a hard bias/lead structure being disposed at side areas of said sensor layers, said

5 hard bias/lead structure including:

6 a hard bias layer having a crystalline structure and electrical lead layer having an ordered
7 crystalline structure, and wherein said crystalline structure of said lead is epitaxially
8 matched to said crystalline structure of said hard bias layer; and wherein said hard bias
9 layer is composed of a cobalt alloy, and wherein said lead layer is formed with a B2
10 structure.

1 15. (original): A hard disk drive as described in claim 14 wherein said lead layer is
2 composed of NiAl.

1 16. (original): A hard disk drive as described in claim 14 wherein said lead layer is
2 comprised of NiAl, wherein the Ni composition ranges from approximately 45% to
3 approximately 60%.

1 17. (original): A hard disk drive as described in claim 16 wherein said Ni
2 composition is approximately 50%.

1 18. (cancelled)

1 19. ~~A hard disk drive including a magnetic head as described in claim 18~~ A hard disk
2 drive including a magnetic head having a magnetoresistive sensor, comprising:
3 a plurality of sensor layers;

4 a hard bias/lead structure being disposed at side areas of said sensor layers, said
5 hard bias/lead structure including an electrical lead layer having an ordered crystalline
6 structure; and wherein said ordered crystalline structure is selected from the group
7 consisting of B2, L1₀, L1₁, L1₂ and D0₃.

1 20. (currently amended): ~~A hard disk drive including a magnetic head as described in~~
2 ~~claim 18~~ A hard disk drive including a magnetic head having a magnetoresistive sensor,
3 comprising:

4 a plurality of sensor layers;

5 a hard bias/lead structure being disposed at side areas of said sensor layers, said
6 hard bias/lead structure including an electrical lead layer having an ordered crystalline
7 structure; and wherein said electrical lead is comprised of a material selected from the
8 group consisting of NiAl, CuAu, Cu₃Au, Ni₃Al and Fe₃Al.

1 21. (original): A hard disk drive including a magnetic head having a magnetoresistive
2 sensor, comprising:

3 a plurality of sensor layers;

4 a hard bias/lead structure being disposed at side areas of said sensor layers, said
5 hard bias/lead structure including a hard bias layer that is comprised of a cobalt alloy, and
6 an electrical lead layer that is comprised of an NiAl alloy and is deposited directly upon
7 said hard bias layer.

1 22. (original): A hard disk drive as described in claim 21 wherein said NiAl electrical
2 lead has a B2 crystalline structure.

1 23. (original): A hard disk drive as described in claim 21 wherein said NiAl lead
2 layer includes Ni having a composition between 45% Ni and 60% Ni.

1 24. (original): A hard disk drive as described in claim 23 wherein said Ni
2 composition is approximately 50%.

1 25. (withdrawn): A method for fabricating a magnetic head, comprising:
2 fabricating a plurality of sensor layers upon a substrate, said sensor layers being
3 formed with end portions thereof;
4 fabricating a hard bias/lead structure proximate said end portions of said sensor
5 layers, including:
6 fabricating a hard bias layer;
7 fabricating an electrical lead layer directly upon said hard bias layer, where said
8 electrical lead layer is epitaxially matched to said hard bias layer.

1 26. (withdrawn): A method for fabricating a magnetic head as described in claim 25,
2 wherein said electrical lead layer is fabricated by ion beam deposition.

1 27. (withdrawn): A method for fabricating a magnetic head as described in claim 25,
2 wherein said hard bias layer is composed of a cobalt alloy, and wherein said electrical
3 lead layer is formed with a B2 structure.

1 28. (withdrawn): A method for fabricating a magnetic head as described in claim 25
2 wherein said electrical lead layer is composed of NiAl.

1 29. (withdrawn): A method for fabricating a magnetic head as described in claim 28,
2 wherein said electrical lead layer is fabricated by ion beam deposition utilizing a target
3 having an $\text{Ni}_x\text{Al}_{1-x}$ composition where x is between 0.46 and 0.50.

1 30. (withdrawn): A method for fabricating a magnetic head, comprising:
2 fabricating a plurality of sensor layers upon a substrate, said sensor layer being
3 formed with end portions thereof;
4 fabricating a hard bias/lead structure proximate end portions of said sensor layers,
5 including:
6 fabricating a hard bias layer;
7 fabricating an electrical lead layer above said hard bias layer, where said lead
8 layer is fabricated to have an ordered crystalline structure.

1 31. (withdrawn): A method for fabricating a magnetic head as described in claim 30
2 wherein said electrical lead layer ordered crystalline structure is selected from the group
3 consisting of B2, L1₀, L1₁, L1₂ and D0₃.

1 32. (withdrawn): A method for fabricating a magnetic head as described in claim 30
2 wherein said electrical lead layer is comprised of a material selected from the group
3 consisting of NiAl, CuAu, Cu₃Au, Ni₃Al and Fe₃Al.

1 33. (withdrawn): A method for fabricating a magnetic head as described in claim 32,
2 wherein said electrical lead layer is fabricated by ion beam deposition.